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No. 741/42.

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COMPLETE SPECIFICATION

Improvements relating to Drills and to Cutters therefor

We, ALFRED HERBERT LLOYD, a British Company, and ARTHUR HARMON LLOYD, a British Subject, both of the Company's address, Canal Road, Edgwick, Coventry, Warwickshire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a cutter for a drill—particularly the kind comprising the combination with a straight-fluted body, of a spiral or other cutter detachably secured thereto. Such a drill is disclosed in patent specification No. 20448/14 in the name of the applicant Company and others.

The main object of our present invention is to provide improvements which will reduce the cost of production, on the one hand, and make for more efficient operation on the other.

According to the invention, the cutter has straight grooves formed along opposite faces from opposite sides, the grooves sloping towards the apex of the cutter where they overlap one another (in end view), the grooves, which are of uniform depth, being inclined to the axis of the cutter at approximately 18°. Preferably the cutter has flat faces formed at its end and at its sides to give front relief and relief along its sides.

The invention further consists in a drill comprising a straight-fluted body detachably carrying a cutter as specified above. In the accompanying sheet of drawings:—

Figure 1 is an elevational view of one face of a cutter according to the invention;

Figure 2 is an end view thereof looking in the direction of the groove shown in Figure 1 on the said one face;

Figure 3 is a side view of the cutter of Figure 1;

Figure 4 is an underside view; and Figures 5 and 6 are face and side views of the cutter to a smaller scale, corresponding to Figures 1 and 3, respectively, when mounted in a preferred form of drill body.

In the construction shown the body 10 is similar to that disclosed in the speci-

fication above-mentioned, being provided with two straight flutes 11 and with a diametrical slot at one end into which is fitted the cutter 12, the latter being supported by the body shoulders 13 bordering the slot. The cutter has an axially-disposed cylindrical stem 15 to be received in a corresponding opening in the body and to be located therein in any convenient manner, as by means of a dowel passed through the holes 16-16 (Figures 1 and 6). Oil grooves may be provided in the body as disclosed in the specification above-mentioned.

In the present instance, the cutter has a V-shaped end providing two flat, oppositely-inclined, bevelled faces 18, whereby to give front relief. In a rather similar way at each side of the cutter there is a flat face 20 to give relief on the side of the drill. Each main face of the cutter has a single straight groove 22 formed in it to be of uniform depth. (Figures 1 and 2) represents the slope of the groove across the face of the cutter, this line being inclined at an angle of 18°, as shown, to the axis of the cutter. The grooves on opposite faces of the cutter, it will be observed, are inclined towards the apex of the cutter and overlap one another in end view.

The cutter thus formed has advantages from the point of view of cutting over that of the prior specification. Furthermore, the cost of production is materially less as the grooves 22 can be milled, the axis of the milling cutter being inclined at about 72° to the axis of the cutter 12. Thus, the cutters 12 can be produced on a plain milling machine instead of a universal milling machine having to be used. Alternatively, instead of the grooves 22 being milled, it will be evident that they can be economically machined by planing or shaping machines.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A cutter, for a drill, having straight grooves formed along opposite faces from opposite sides, the grooves sloping towards the apex of the cutter, where they overlap one another (in end view), at in-

clinations to the axis of the cutter of approximately 18°, the grooves being of uniform depth.

5 2. A cutter, according to claim 1, having flat faces formed at its end and at its sides to give front relief and relief along the sides of the cutter.

10 3. A drill comprising a straight-fluted body detachably carrying a cutter, arranged according to any preceding claim, in a diametrical slot at its end.

4. The complete cutter, for a drill, substantially as hereinbefore described with reference to the accompanying sheet of drawings.

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Dated this 17th day of January, 1942.

WALFORD & HARDMAN BROWN,

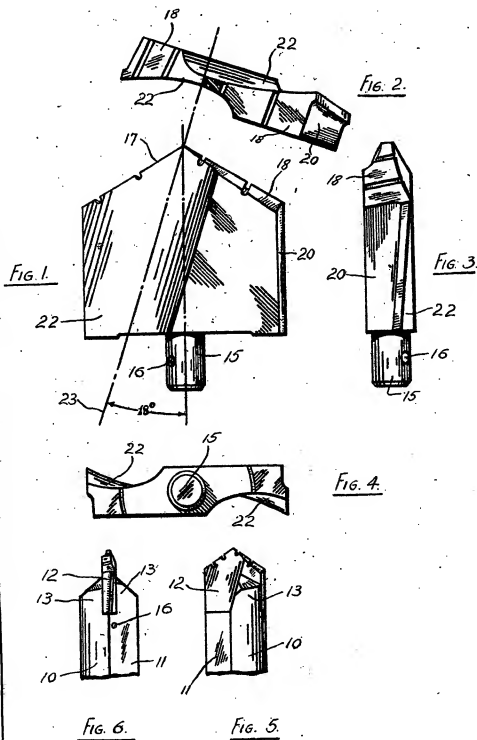
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